Claims:

1. A method for treating waste material containing manure from animal feedlots, the method including the steps of mixing the material with a layered double hydroxide material, optionally a clay material and optionally water to form a mixture, said layered double hydroxide material being added in an amount sufficient to sequester anions present in the waste sludge or slurry, said layered double hydroxide material and clay material and optionally water being added in an amount sufficient to form a workable mixture for granulating, and subjecting the mixture to a granulating process and a drying process to form dried granules.

2. A method as claimed in claim 1 wherein the amount of layered double hydroxide material added to the waste material is determined by adding trial amounts of layered double hydroxide material to a sample of the waste material, analysing a liquid component from the waste material for anion content, selecting a liquid component having a desired or pre-determined anion content and selecting the amount of layered double hydroxide material added to the waste sample from which the selected liquid component was obtained as the determined amount of layered double hydroxide material.

3. A method as claimed in claim 2 wherein the amount of layered double hydroxide material added to the waste material is in excess of the determined amount.

4. A method as claimed in claim 1 wherein the amount of layered double hydroxide material to be added to the waste material is determined by determining the amount of soluble anions in the waste material and adding at least sufficient LDH material to sequester the determined amount of soluble anions.

5. A method as claimed in claim 4 wherein the waste material is a waste sludge or slurry and the amount of layered double hydroxide material added to the waste sludge or slurry is determined by determining the amount of dissolved anions and leachable anions in the waste sludge or slurry and adding at least sufficient layered double hydroxide

material to sequester the determined amount of dissolved and leachable anions.

6. A method as claimed in claim 4 wherein the amount of layered double hydroxide material added to the waste sludge or slurry is in excess of the amount required to sequester the determined amount of dissolved and leachable anions

7. A method as claimed in claim 5 or claim 6 wherein the amount of layered double hydroxide material that is added to sequester the determined amount of dissolved and leachable anions is determined by determining the anion exchange capacity of the layered double hydroxide material, and calculating the amount of layered double hydroxide material required to sequester the determined amount of dissolved and leachable anions.

8. A method as claimed in any one of claims 5 to 7 wherein the amount of dissolved and leachable anions present in the waste sludge or slurry is determined by separating the sludge or slurry into a liquid fraction and a solid fraction, analysing the liquid fraction to determine the amount of dissolved anions, and subjecting the solid fraction to a leaching test to determine the amount of leachable anions.

9. A method as claimed in any one of the preceding claims wherein the layered double hydroxide material is preferably of the general formula (1):

$$M_{1-x}^{2+}M_x^{3+}(OH)_2A_{x/n}^{n-}yH_2O \qquad (1)$$

where M^{2+} and M^{3+} are di- and tri-valent metal ions respectively and A^{n-} is the interlayer anion of valance n, the x value represents the proportion of trivalent metal to the total amount of metal ion present and y denotes variable amounts of interlayer water..

10. A method as claimed in claim 9 wherein the metal ions are selected from Mg^{2+}, Al^{3+}, Mg^{2+}, Fe^{3+} and other cations including Ni, Zn, Mn, Ca, Cr, and La.

11. A method as claimed in claim 10 wherein the metal ions are Mg^{2+} and Al^{3+} and the layered double hydroxide material is a hydrotalcite.

12. A method as claimed in claim 11 wherein the hydrotalcite Cl^- ions or nitrate ions as its interlayer anions.

13. A method as claimed in any one of the previous claims wherein the clay material is added and the clay material is selected from natural clays and synthetic clays.

14. A method as claimed in claim 13 wherein the natural clays are selected from bentonite, montmorillonite, kaolinite, halloysite, illite, chlorite, attapulgite and allophane or mixtures of two or more thereof.

15. A method as claimed in claim 14 wherein the natural clay is bentonite.

16. A method as claimed in claim 13 wherein the synthetic clays are selected from dawsonite or XAM.

17. A method as claimed in any one of the preceding claims wherein the granulating processes is selected from granulating using rotating inclined tables, rotating drums, fluidised beds, high speed choppers or extrusion.

18. A method as claimed in any one of the preceding claims wherein the drying step forms part of the granulating process or takes place as a separate step to the formation of the granules.

19. A method as claimed in claim 18 wherein the drying step is carried out by passing the granules through a drier operated at elevated temperature.

20. A method as claimed in claim 19 wherein the drier is operated at a temperature of from 20°C to 100°C.

21. A method as claimed in any one of the preceding claims wherein the waste material is a waste sludge or slurry having a high water content, and the method further includes the steps of removing part of the water from the waste slurry or sludge prior to contacting with the layered double hydroxide material and the clay material and treating the removed part of the water to remove dissolved anions therefrom.

22. A method as claimed in claim 21 wherein the removed part of the water may be contacted with a layered double hydroxide material to remove dissolved anions.

23. A method as claimed in claim 22 wherein the removed part of the water is contacted with hydrotalcite containing nitrate as an interlayer anion and nitrate anions are not removed from the water and the water is subjected to a denitrification process.

24. A method as claimed in claim 22 or claim 23 wherein the layered double hydroxide material that is used to treat the removed part of the water does not become saturated with the anions removed from the water and the layered double hydroxide material that is contacted with the water is added to the waste sludge or slurry, either as all of the layered double hydroxide material added to the waste sludge or slurry or as a complement to other layered double hydroxide material added to the waste sludge or slurry.

25. A method as claimed in any one of claims 1 to 21 wherein the waste material is a waste sludge or slurry having a high water content, and the method further includes the steps of removing part of the water from the waste slurry or sludge prior to contacting with the layered double hydroxide material and the clay material and reusing the water.

26. A method as claimed in claim 1 wherein the waste material is a relatively dry material, such as chicken manure from a battery farm, and water is added to the waste material in order to obtain a workable mixture.

27. A method as claimed in claim 26 wherein the water is added to the waste material prior to mixing with the layered double hydroxide material or added together

with or after addition of one or both of the layered double hydroxide material and the clay material to the waste material.

28. A method as claimed in any one of the preceding claims wherein the granules are subjected to a disinfection treatment to kill deleterious organisms therein.

29. A method as claimed in claim 28 wherein the disinfection treatment is a heat treatment or an irradiation treatment.

30. A method as claimed in claim 29 wherein the disinfection treatment is a heat treatment that is or forms part of the drying step.